

REMARKS

This responds to the Office Action mailed on June 22, 2009.

Claims 1, 8, 12, 13, 52, 62, 63 and 67 are amended, no claims are canceled, and no claims are added; as a result, claims 1-13, 52, 53 and 60-70 remain pending in this application.

§ 103 Rejection of the Claims

Claims 1-13, 52, 53 and 60-70 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,403,441 B1 to Takehiro *et al.* (hereinafter, “Takehiro”) in view of U.S. Patent No. 6,358,810 B1 to Dornfest *et al.* (hereinafter, “Dornfest”). Applicants disagree with the foregoing stated grounds of rejection and desire to further clarify various distinctions over the cited art. Reconsideration of the present application is therefore requested in light of the present amendment and following remarks.

The Examiner has cited Takehiro in combination with Dornfest in rejecting the foregoing claims. Specifically, the Examiner acknowledges, *inter-alia*, that Takehiro fails to disclose a support surface that extends into a recess formed in the substrate assembly. Accordingly, the Examiner has cited Dornfest for allegedly disclosing this missing teaching.

The Examiner points to the disclosure in Figures 1-4 and 6 in Dornfest as allegedly providing the necessary teaching. In particular, the Examiner asserts that the layers 54, 56, 58 and 60 correspond to the support surface, as presently claimed (Office action at page 3). With reference now to Figure 3 of Dornfest, Applicants note that the layers 54, 56, 58 and 60 correspond to titanium, titanium nitride, ‘a tuning layer’ and a ‘metal’, respectively. The ‘tuning layer’ is disclosed in Dornfest to include RuO₂, Ru/RuO₂, IrO₂, Ir/Ir/O₂, and TiAlN (col. 8, lines 45-52). The ‘metal’ is disclosed as a “...metal selected from the group...platinum, ruthenium, iridium, rhodium, platinum combined with rhodium, platinum combined with iridium, platinum combined with ruthenium, and combinations thereof...” (col. 8 lines 60-65). Accordingly, the Applicants understand the alleged support surface disclosed in Dornfest to be a non-uniform composite structure having both non-conductive (*e.g.*, titanium nitride, RuO₂,

Ru/RuO₂, IrO₂, Ir/IrO₂, and TiAlN) and conductive (e.g., platinum, ruthenium, iridium, rhodium and other combinations) materials.

Turning now to the claims, differences between the claim language and the applied art will be specifically pointed out. Claim 1, as amended, recites in pertinent part: “A substrate assembly, comprising...*a support surface having a uniform composition and extending into a recess formed in the substrate...*” (Emphasis added). The applied combination does not disclose or suggest this. Instead, Dornfest discloses an alleged support surface that includes both conductive and non-conductive materials. Claim 1 is therefore allowable. Claims depending from claim 1 are also allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

Claim 8, as amended, recites in pertinent part: “A capacitor dielectric, comprising... a second high-K capacitor dielectric comprising said metallic element, having a lower oxygen density than said first high-K capacitor dielectric, and contacting said first high-K capacitor dielectric, wherein the first high-K capacitor dielectric manifests a greater oxidation than would an equivalent thickness of the second high-K capacitor dielectric, further wherein an oxide present in the first high-K dielectric layer and the second high-K dielectric layer is not diffused into *a support surface having a uniform composition* that extends into a recess that supports the first high-K dielectric layer and the second high-K dielectric layer...” (Emphasis added). Again, the cited combination does not disclose or suggest this. Dornfest discloses, at most, a non-uniform support surface. Claim 8 is also allowable. Claims depending from claim 8 are allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

Claim 12, as amended, recites in pertinent part: “A capacitor dielectric, comprising... wherein said first high-K capacitor dielectric and said second high-K capacitor dielectric are oxides, wherein said first high-K capacitor dielectric contains a first amount of oxygen per unit volume, and wherein said second high-K capacitor dielectric contains a second amount of oxygen per unit volume different from said first amount, further wherein the first high-K capacitor dielectric manifests a greater oxidation

than would an equivalent thickness of the second high-K capacitor dielectric, *a support surface having a uniform composition* and extending into a recess that supports the first high-K dielectric layer and the second high-K dielectric layer that remains substantially free of the oxides..." (Emphasis added). Dornfest fails to disclose this. Claim 12 is therefore allowable. Claims depending from claim 12 are also allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

Claim 13, as amended, recites in pertinent part: "A capacitor structure, comprising... a first electrode layer *having a uniform composition* and extending into a recess in a substrate..." (Emphasis added). The cited combination simply fails to disclose or suggest this. Claim 13 is also therefore allowable. Claims depending from claim 13 are further allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

Claim 52, as amended, recites in pertinent part: "A capacitor dielectric, comprising...a supporting surface *having a uniform composition* and extending into a recess and abutting the plurality of capacitor dielectric layers..." (Emphasis added). Again, the cited combination fails to disclose or suggest this. In particular, the Dornfest fails to disclose a supporting surface having a uniform composition. Claim 52 is also therefore allowable. Claims depending from claim 52 are further allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

Claim 62, as amended, recites in pertinent part: "A capacitor dielectric, comprising a plurality of capacitor dielectric layers positioned between a supporting surface *having a uniform composition* and extending into a recess..." (Emphasis added). As described in greater detail earlier, the cited combination fails to disclose or suggest this. Claim 62 is also therefore allowable. Claims depending from claim 62 are further allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

Claim 63, as amended, also recites in pertinent part: "A capacitor dielectric, comprising a plurality of capacitor dielectric layers disposed between a supporting

surface *having a uniform composition* and extending into a recess..." (Emphasis added).

Again, as described in greater detail above, the applied art simply fails to disclose or suggest this. Claim 63 is also allowable. Claims depending from claim 63 are further allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

Finally, claim 67 recites in pertinent part: "A capacitor dielectric, comprising a plurality of capacitor dielectric layers abutting *a supporting surface having a uniform composition* and extending into a recess..." (Emphasis added). Again, the applied combination simply fails to disclose, or fairly suggest this. Claim 67 is allowable over the cited combination. Claims depending from claim 67 are further allowable, based upon the allowable form of the base claim and based further upon the additional limitations recited in the dependent claims.

CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (612) 373-6900 to facilitate prosecution of this application.

If necessary, please charge any additional fees or deficiencies, or credit any overpayments to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 22, 2009.

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